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Application No. 09/051,070

July 8, 2004

AMENDMENTS TO THE CLAIMS:

1. (previously amended) Training apparatus for training a user to engage in transactions with another person whom the apparatus is arranged to simulate, the apparatus comprising:
 - an output device for outputting of messages to a user;
 - an input for receiving input from the user;
 - a lexical store containing data relating to individual words of said input;
 - a rule store containing rules specifying grammatically allowable relationships between words of said input;
 - a transaction store containing data relating to allowable transactions between said user and said person, said data defining, for said output messages, types of allowable inputs from said user;
 - an output message buffer for storing data representative of the most recent message output by the output device and at least a preceding one of said messages output from the output device;
 - a processor having at least read access to the lexical store and the rule store, said processor being arranged to process the input by comparing the input with the words contained in said lexical store and with the relationships specified by the rules contained in said rule store, in order to recognize the occurrence in the input of words contained in said lexical store and in the relationships specified by the rules contained in said rule store, and, in dependence upon said recognition, to generate output indicating when

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correct input has been recognized; and wherein said processor is further responsive to the data contained in the message buffer and the transaction store to:

(a) determine whether said input is an allowable response to a most recent one of the output messages represented by data stored in the output message buffer; and

(b) if said input is not determined to be an allowable response to a most recent one of the messages, determine whether said input is an allowable response to a preceding message represented by data stored in the output message buffer;

an output device for making the output available to the user so that said user can be trained to engage in transactions with another person.

2. (previously amended) Training apparatus for training a user to engage in transactions with another person whom the apparatus is arranged to simulate, the apparatus comprising:

an input for receiving input dialogue from a user;

a lexical store containing data relating to individual words of said input dialogue;

a rule store containing rules specifying grammatically allowable relationships between words of said input dialogue;

a transaction store containing data relating to allowable transactions between said user and said person;

a processor having at least read access to the lexical store, the rule store and the transaction store, said processor being arranged to process the input dialogue by comparing the input dialogue with the words contained in said lexical store, with the

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relationships specified by the rules contained in said rule store, and with the data specified in the transaction store, in order to recognize the occurrence in the input dialogue of words contained in said lexical store, in the relationships specified by the rules contained in said rule store, in accordance with the data specified in the transaction store, and, in dependence upon said recognition, to generate output dialogue indicating when correct input dialogue has been recognized; and

an output device for making the output dialogue available to the user so that said user can be trained to engage in transactions with another person;

wherein said rule store contains first rules comprising criteria specifying correct relationships between words of said lexical store, and, associated with said first rules, one or more second rules each corresponding to one of said first rules but with one relationship criterion relaxed, said processor processing said input dialogue using both said first rules and second rules.

3. (previously amended) Apparatus according to claim 2, wherein said relationship criteria correspond to agreements between words.

4. (previously amended) Apparatus according to claim 1, in which the processor is arranged to generate output responsive to input, and to detect recognized errors in said input, and, on detection thereof, to indicate said recognized errors separately of said responsive output.

5. (previously amended) Apparatus according to claim 2, in which said processor is arranged to detect said recognized errors on detection of input dialogue containing words which meet said second, but not said first, rules.

6. (previously amended) Apparatus according to claim 1 which is arranged to provide language training, in which said rules, said words, and said output are in a training target language, and further arranged to generate user guidance in a source language for said user and different to said target language.

7. (previously amended) Apparatus according to claim 6 in which the user guidance comprises guidance as to the meaning of the output.

8. (previously amended) Apparatus according to claim 6 in which the user guidance comprises an explanation of any detected errors in the input.

9. (previously amended) Apparatus according to claim 6 in which the user guidance indicates suitable further input which could be provided.

10. (previously amended) Apparatus according to claim 1 in which said input and/or said output comprise text.

11. (previously amended) Apparatus according to claim 1, in which said input comprises speech, and further comprising a speech recognizer arranged to recognize the words of said speech.

12. (previously amended) Apparatus according to claim 1 in which said output comprises speech, said apparatus further comprising a speech synthesizer.

13. (previously amended) Apparatus according to claim 1, further comprising a user interface arranged to accept said input and make available said output to the user.

14. (original) Apparatus according to claim 13, in which said user interface comprises a display and in which said output is displayed on said display.

15. (previously amended) Apparatus according to claim 6, in which said user interface comprises a display to display said output and user guidance is normally not displayed on said display, and further comprising an input device via which a user may selectively cause the display of said user guidance on said display.

16. (previously amended) Apparatus according to claim 13, in which said user interface is located remotely from said processor and is coupled thereto via a communications channel.

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17.-19. (canceled)

20. (original) Apparatus according to claim 3, wherein said agreements between words comprises agreements of gender or agreements of number.

21. (original) Apparatus according to claim 1, further comprising an inflection store operatively coupled to said lexical store.

22. (original) Apparatus according to claim 21, wherein each record in said lexical store contains a pointer to one of records in said inflection store.

23. (original) Apparatus according to claim 21, wherein the number of records in the inflection store is smaller than the number of records in the lexical store.

24. (currently amended) An interactive dialogue apparatus for simulating dialogue with a user, the apparatus comprising:

an output device for outputting messages to the user;

an input device for receiving input from the user in response to a message output from the output device in order to simulate dialogue;

a lexical store for storing data relating to individual words;

a rule store for storing rules specifying grammatically allowable relationships between words of said input;

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a processor for processing said input to recognize occurrence in the input of words stored in said lexical store and in the relationships specified by the rules stored in said rule store;

an output message buffer for storing data representative of a plurality of messages output to said user; and

a transaction store for storing data defining, for each of said messages, a type of allowable response;

said processor being responsive to an input from said user, to the data stored in the output message buffer and to the data stored in the transaction store to:

(a) determine whether said input is an allowable response to a most recent one of the messages represented by data stored in the output message buffer; and

(b) if said input is determined not to be an allowable response to a most recent one of the messages, determine whether said input is an allowable response to another one of the messages represented by data stored in the output message buffer.

25. (currently amended) An interactive dialogue apparatus for simulating dialogue with a user, the apparatus comprising:

an output device for outputting messages to the user;

an input device for receiving input from the user;

a lexical store for storing data relating to individual words;

a rule store for storing rules specifying grammatically allowable relationships between words of said input;

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a processor for processing said input to recognize occurrence in the input of words stored in said lexical store and in the relationships specified by the rules stored in said rule store;

an output message buffer for storing data representative of a plurality of messages output to said user; and

a transaction store for storing data defining, for each of said messages, a type of allowable response;

said processor being responsive to an input from said user, to the data stored in the output message buffer and to the data stored in the transaction store to:

(a) determine whether said input is an allowable response to a most recent one of the messages represented by data stored in the output message buffer; and

(b) if said input is determined not to be an allowable response to a most recent one of the messages, determine whether said input is an allowable response to another one of the messages represented by data stored in the output message buffer;

Apparatus according to claim 24, wherein said rule store stores first rules comprising criteria specifying correct relationships between words of said lexical store, and, associated with said first rules, one or more second rules each corresponding to one of said first rules but with one relationship criterion relaxed, said processor processing said input using both said first rules and second rules.

26. (original) Apparatus according to claim 24, wherein the processor is arranged to generate output responsive to input, and to detect recognized errors in said

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input, and, on detection thereof, to indicate said recognized errors separately of said responsive output.

27. (original) Apparatus according to claim 24, said apparatus being arranged to provide language training, in which said rules, said words, and said output are in a training target language, and further being arranged to generate user guidance in a source language for said user and different to said target language.

28. (currently amended) A method of operating an interactive dialogue apparatus for simulating dialogue with a user, the method comprising:

outputting messages to the user;

receiving input from the user in response to a message output to the user in order to simulate dialogue;

storing data relating to individual words;

storing rules specifying grammatically allowable relationships between words of the input;

processing said input to recognize occurrence in the input of words related to stored data and relationships specified by the stored rules;

storing message data representative of a plurality of messages output to the user;

and

storing data defining, for each of the output messages, a type of allowable response;

determining whether an input is an allowable response to a most recent one of the stored messages represented by stored message data; and

if the input is not determined to be an allowable response to a most recent one of the messages, determining whether the input is an allowable response to another stored message represented by stored message data.

29. (currently amended) An interactive dialogue apparatus for simulating dialogue with a user, the apparatus comprising:

an output device for outputting messages to the user;

an input device for receiving input from the user in response to a message output from the output device in order to simulate dialogue;

a processor for processing said input;

an output message buffer for storing a plurality of messages output to the user; and

a transaction store for storing a type of allowable response for each of the messages output to the user;

wherein the processor determines whether the input is an allowable response to a most recent one of the messages output to the user, and if not, determining whether the input is an allowable response to a previous one of the messages output to the user.

30. (currently amended) Training apparatus for training a user to engage in transactions with another person whom the apparatus is arranged to simulate, the apparatus comprising:

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an output device for outputting of messages to a user;

an input for receiving input from the user;

a lexical store containing data relating to individual words of said input;

a rule store containing rules specifying grammatically allowable relationships between words of said input;

a transaction store containing data relating to allowable transactions between said user and said person, said data defining, for said output messages, types of allowable inputs from said user;

an output message buffer for storing data representative of the most recent message output by the output device and at least a preceding one of said messages output from the output device;

a processor having at least read access to the lexical store and the rule store, said processor being arranged to process the input by comparing the input with the words contained in said lexical store and with the relationships specified by the rules contained in said rule store, in order to recognize the occurrence in the input of words contained in said lexical store and in the relationships specified by the rules contained in said rule store, and, in dependence upon said recognition, to generate output indicating when correct input has been recognized; and wherein said processor is further responsive to the data contained in the message buffer and the transaction store to:

(a) determine whether said input is an allowable response to a most recent one of the output messages represented by data stored in the output message buffer; and

(b) if said input is not determined to be an allowable response to a most recent one of the messages, determine whether said input is an allowable response to a preceding message represented by data stored in the output message buffer; and an output device for making the output available to the user so that said user can be trained to engage in transactions with another person;

~~Training apparatus according to claim 1, wherein said rule store stores first rules comprising criteria specifying correct relationships between words of said lexical store, and, associated with said first rules, one or more second rules each corresponding to one of said first rules but with one relationship criterion relaxed, said processor processing said input using both said first rules and second rules.~~

31. (new) A dialogue training apparatus for training a user to engage in dialogue transactions with another person whom the apparatus is arranged to simulate, the apparatus comprising:

an output device for outputting of messages to a user;
an input for receiving input from the user;
a lexical store containing data relating to individual words of said input;
a rule store containing rules specifying grammatically allowable relationships between words of said input;
a transaction store containing data relating to allowable transactions between said user and said person, said data defining, for said output messages, types of allowable inputs from said user;

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an output message buffer for storing data representative of the most recent message output by the output device and at least a preceding one of said messages output from the output device;

a processor having at least read access to the lexical store and the rule store, said processor being arranged to process the input by comparing the input with the words contained in said lexical store and with the relationships specified by the rules contained in said rule store, in order to recognize the occurrence in the input of words contained in said lexical store and in the relationships specified by the rules contained in said rule store, and, in dependence upon said recognition, to generate output indicating when correct input has been recognized; and wherein said processor is further responsive to the data contained in the message buffer and the transaction store to:

- (a) determine whether said input is an allowable response to a most recent one of the output messages represented by data stored in the output message buffer; and
- (b) if said input is not determined to be an allowable response to a most recent one of the messages, determine whether said input is an allowable response to a preceding message represented by data stored in the output message buffer;

an output device for making the output available to the user for training the user to engage in dialogue transactions with another person.